IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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10/11/91

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Applicant: Rodney M. Richards)
Theodore Jones)
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Serial No.: 220,108)
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Filed: June 24, 1988)
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For: Method and Reagents for)
Amplifying and Detecting)
Nucleic Acid Sequences)
)
Group Art Unit: 180)
)
Examiner: Scheiner)

DECLARATION OF
RODNEY M. RICHARDS

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Dear Sir:

1. I, Rodney M. Richards, do hereby declare that, I am a co-inventor of the method and reagents for amplifying and detecting nucleic acid sequences in the above-entitled patent application (hereinafter, the "Patent Application").

2. Since 1982 I have been employed as a Research Scientist by Amgen Inc., assignee of the entire right, title, and interest in the Patent Application. I received a B.S. in chemistry and a M.S. in organic chemistry from the University of Denver in 1973 and 1977, respectively. I received my Ph.D. in organic chemistry from the University of Colorado in December of 1981.

3. I have extensive experience in the area of oligonucleotide probe diagnostics, and I am familiar with the prosecution history of the Patent Application. I participated in an interview with Examiner Scheiner in connection with the Patent Application on May 3, 1990. During the May 3 interview, I produced for Examiner Scheiner's review photographs of autoradiograms from model systems of the

Patent Application using the following amplification/detection formats: (1) three pairs of amplification probes/two detection probes; (2) four pairs of amplification probes/three detection probes; and, (3) five pairs of amplification probes/four detection probes. These same photographs are produced herein as Exhibits A1, B1, and C1, respectively, to this Declaration.

4. Exhibits A2, B2, and C2 to this Declaration illustrate for each of the photographs in Exhibits A1, B1, and C1, respectively: (1) the probe length for the particular amplification/detection format employed; and, (2) a graphic legend for reading the respective autoradiogram. In the case of the format employing five pairs of amplification probes and four detection probes, the middle two detection probes have been covalently joined. Exhibits A2, B2, and C2 were also produced at the May 3, 1990 interview.

5. The combined amplification/detection method of the Patent Application is most effective when the number of pairs of amplification probes are increased. As the number of pairs of amplification probes increases, the amount of correctly assembled blunt-end ligated amplification by-product decreases. The combined amplification/detection method discriminates between correctly assembled and incorrectly assembled amplification product, enabling the amount of blunt-ligated by-product which is inadvertently detected, to be reduced to an insignificant level.

October 4, 1991

Rodney M. Richards